

What is claimed is:

1. A heat sink with fins comprising:

a base plate made of a heat conductive material;

a plurality of heat dissipating fins which are positioned in heat-dissipating-fin mounting portions formed on one surface of said base plate and are jointed to said base plate by mechanical crimping; and

at least one heat pipe which is positioned in a heat-pipe mounting portion formed on an opposite surface of said base plate, portions in the vicinity of said heat pipe being crimped to joint said heat pipe to said base plate.

2. A heat sink with fins comprising:

a base plate made of a heat conductive material;

a plurality of heat dissipating fins which are positioned in heat-dissipating-fin mounting portions formed on one surface of said base plate and are jointed to said base plate by mechanical crimping; and

at least one heat pipe which is inserted into a hollow formed in said base plate, portions in the vicinity of said heat pipe being crimped to joint said heat pipe to said base plate.

3. The heat sink with fins as claimed in claim 1 or 2, wherein an end of said heat pipe extends to a predetermined position so as to provide the end of said heat pipe with another heat sink.

4. The heat sink with fins as claimed in claim 3, wherein said heat pipe is provided crossed with said heat dissipating fins, and said other heat sink comprises a plurality of heat dissipating fins with a

fan provided in the vicinity of said heat dissipating fins.

5. A heat sink with fins comprising:

    a base plate made of a heat conductive material;

    a plurality of heat dissipating fins which are positioned in heat-dissipating-fin mounting portions formed on one surface of said base plate and are jointed to said base plate by mechanical crimping; and

    at least one heat pipe which is positioned in a heat-pipe mounting portion formed on the surface of said base plate to which said heat dissipating fins are jointed, portions in the vicinity of said heat pipe being crimped to joint said heat pipe to said base plate.

6. The heat sink with fins as claimed in claim 5, wherein said heat-pipe mounting portion comprises a heat pipe receiving portion for receiving said heat pipe and a slit portion for connecting said heat pipe receiving portion and the surface of said base plate.

7. The heat sink with fins as claimed in claim 6, wherein said heat-dissipating-fin mounting portions and said slit portion are crossed, and said heat dissipating fins, which are positioned in said heat-dissipating-fin mounting portions to be jointed to said base plate by mechanical crimping, press a part of said heat pipe.

8. The heat sink with fins as claimed in any one of claims 1, 2, 5, 6 and 7, wherein a longitudinal direction of said heat pipe is positioned crossed with a longitudinal direction of said heat dissipating fins.

9. The heat sink with fins as claimed in claim 1 or 2, wherein the surface of said base plate and a surface of said heat pipe are positioned in the same plane.

10. The heat sink with fins as claimed in claim 2, wherein said hollow is formed jutting from the surface of said base plate.

11. The heat sink with fins as claimed in claim 5, wherein said heat dissipating fins are cut off at portions corresponding to said heat pipe which is inserted into said heat-pipe mounting portion and jutting from the surface to which said heat dissipating fins are jointed.

12. The heat sink with fins as claimed in any one of claims 1, 2, 4 to 7, 10 and 11, wherein crimping of said heat pipe is performed by point crimping along the longitudinal direction of said heat pipe.

13. The heat sink with fins as claimed in claim 8, wherein crimping of said heat pipe is performed by point crimping along the longitudinal direction of said heat pipe.

14. The heat sink with fins as claimed in claim 9, wherein crimping of said heat pipe is performed by point crimping along the longitudinal direction of said heat pipe.

15. The heat sink with fins as claimed in any one of claims 1, 2, 4 to 7, 10 and 11, wherein crimping of said heat pipe is performed by slit crimping with slits which are perpendicular to the longitudinal direction of said heat pipe.

16. The heat sink with fins as claimed in claim 8, wherein crimping of said heat pipe is performed by slit crimping with slits which are perpendicular to the longitudinal direction of said heat pipe.

17. The heat sink with fins as claimed in claim 9, wherein crimping of said heat pipe is performed by slit crimping with slits which are perpendicular to the longitudinal direction of said heat pipe.

18. A heat sink with fins comprising:

- a base plate made of a heat conductive material;

- a plurality of heat dissipating fins which are jointed to one surface of said base plate; and

- at least one heat pipe which is positioned in a heat-pipe mounting portion, formed on the surface of said base plate to which said heat dissipating fins are jointed, to be jointed onto said base plate.

19. A heat sink with fins manufacturing method comprising the steps of:

- preparing a base plate made of a heat conductive material, including on one surface of said base plate, heat-dissipating-fin mounting portions for positioning heat dissipating fins and a heat-pipe mounting portion for positioning a heat pipe;

- inserting said heat pipe into said heat-pipe mounting portion of said base plate, and inserting said heat dissipating fins into said heat-dissipating-fin mounting portions; and

- mechanically crimping portions in the vicinity of both sides of each of said heat-dissipating-fin mounting portions so that said

heat dissipating fins and said heat pipe are jointed to said base plate.

20. The heat sink with fins manufacturing method as claimed in claim 19, wherein said heat-pipe mounting portion comprises a heat pipe receiving portion for receiving said heat pipe and a slit portion for connecting said heat pipe receiving portion and the surface of said base plate, said heat-dissipating-fin mounting portions and said slit portion are crossed, and said heat dissipating fins, which are positioned in said heat-dissipating-fin mounting portions to be jointed to said base plate by mechanical crimping, press a part of said heat pipe.